MISSOURI NATIONAL RECREATIONAL RIVER
Gavins Point Dam to Ponca State Park
2001 Survey

Public and Private Access Spots and Points of Interest Between Gavins Point Dam and Ponca State Park on the Nebraska Side of the River

Nebraska Tailwaters Public Boat Ramp Recreation Area

The first launching access point is just below Gavins Point Dam. There is camping available for at least thirty groups. Water, picnic tables, fire rings, outhouses and at least one shower building with flush stools are available. There is a charge for camping based on the type of facilities used. Reservations are necessary between Memorial Day and Labor Day; however, there are some campsites on a first-come basis. The campsite closes for the season in early October. The camp stretches along the river between the road and the low bluff on the south of the road. Canoes may be launched either at the boat ramp or along the riverbank in several places. This makes an excellent place to spend the night before the first day of a trip on the Missouri River. Also it is just a few minutes drive to the Visitor Center.

Highway 81 - Nebraska Side

From the dam to Highway 81 bridge is about five miles which is about a one hour canoe float. This stretch is not very scenic. The South Dakota side is mostly developed with cabins, and the Nebraska side has cabins, a road and rip-rap right next to it for much of the way.

The area around the bridge on the Nebraska side is shown in the 1981 publication of the Aerial Photography and Maps booklet as being "City of Yankton Undeveloped Recreation Area." It might be possible to arrange with the city to establish a camp and canoe access here. Because of the well developed park on the South Dakota side of the bridge, this may not be necessary unless camping is desired. It is possible that the boat ramp areas on both the Nebraska and South Dakota sides of the river may be so busy with power boat users that a separate, canoe only launch would be desirable. This would be an excellent site for such a launching area. Camping at the access site would be an attractive service for canoeists planning to get an early start on their first day.

Cedar County Park and Public Boat Ramp

The next public access in Nebraska is about six miles below the bridge. It is also known as the St. Helena Boat Ramp. It is approximately one and one-half to two hours down stream from Highway 81. This could be a leisurely afternoon float on a stretch of river that has some erosion controls in place and is mostly lined with cabins on the Nebraska side. The entire bank on this side of the river is quite steep and rises from three feet to more than eight feet straight up from the water.

This park has ample parking and an outhouse (not very clean), a few picnic tables and a water pump. Camping is allowed. The park could probably camp two to four groups of twenty to thirty canoeists each, or six or eight small groups of less than ten. Better and more outhouses would be essential if this becomes a popular camping site. One assumes that the well is tested regularly and that increased use of the outhouse(s) will not pollute the water source.

The main concern about this landing is that the current along the bank may make docking at the boat ramp tricky, especially for novice canoeists. The safest landing technique is to turn the canoe around until it is facing upstream and into the current. See the section on Canoe handling and safety for more information.

Missouri River Canoe Tours

I visited Marlin Roth on his land along the Missouri north of Wynot about ten river miles down river from Cedar Co. Park. He is an outfitter on the Nebraska side of the river, known as Missouri River Tours. A copy of his flyer is included. He has about one-third to one-half mile of river front with very easy access to the water from a dirt ramp, which has been cut into the low bank along the river. This area was known as New Homewood Park, and camping is available by reservation, for a fee. Now, there is nothing more than an outhouse, & picnic table.

The camp is located about one-half mile above the mouth of Bow Creek and is on the inside of Audubon Bend. It is called Audubon Bend because many different species of birds supposedly can be seen there. With a low marshy area straight across from the camp the bend could be a point of interest for canoeists who are interested in birding.

This might be an area that signs identifying Audubon Bend would help canoeists looking for some birding experiences. The bend is just above a high voltage power line stretching across the river. It could serve as a landmark marking the area.

Fossil Turtles

Just below the mouth of Bow Creek at mile marker c787 is a bluff along the Nebraska side of the river. It runs several hundred yards and reaches sixty to one hundred feet above the river. Just above water level near the beginning of this bluff are found several (maybe twenty or so) formations identified by Marlin Roth as fossil sea turtles. While this has not been confirmed by any paleontologists that I know about, his identification appears to have some validity. Each fossil is two to four feet across (some may be a little larger) and is shaped like the back of a turtle. Where weathering has cracked them open and the insides can be studied, they have stone formations that very closely resemble in color and form such things as fat, meat and blood vessels. Marlin said that these formations appeared in 1997 after a summer of very high water eroded the edge of this bluff. They make for a very interesting stop along the river.

There is no access from land as the bluff is on private property and there is no road near . According to Marlin, the landowner opposes any access across his property. It is possible to stop along the bank in a boat, and walk (scramble) to them although that is trespassing. Marlin's thought is to include a stop on his guided boat tours. It appears that they are rather rapidly deteriorating from being exposed to the weather and may not last too many years in their current condition. Increased public presence will undoubtedly speed up their demise. If this proves to be a significant find, it would behoove authorities to try to preserve them as quickly as possible.

Brooky Bottoms

Between Cedar County Park and Brooky Bottoms the river bank varies in height from the river. There are long areas where landing and disembarking would be very difficult or impossible. Interspersed with these are low lying areas that are either mouths of active creeks, overflow channels with no water, sandbars on the inside of river bends or other naturally caused low bank areas. These are common enough that if a landing is necessary, a spot can be found. Of course all of this land is private property and one trespasses if one lands.

Other than shallow sandbars, rocky jetties, and some downed trees, there is little danger to be found in floating this stretch of the river.

Below the mouth of Bow Creek a power line crosses the river. It can be seen by canoeists for some distance. On the South Dakota side it is at the Myron Grove access site.

About four miles below Missouri River Tour's camp is the Cedar County Public Access in Brooky Bottom Park. Parking and unloading areas are large. It is my understanding that Cedar County had help from other state or federal government agencies in building and paying for the boat ramp, parking, etc. Maneuvering trailers to and from the ramp should be easy. Research on its current use would help decide if the area is large enough to also handle canoeists.

There is no campground here, but there is space for one. Camping for a hundred people should be possible. Public restroom facilities are also available, but more will need to be constructed if camping is added. Cedar County has no interest in having a campground here since it is directly across the south channel from Goat Island (see below).

Public water should be provided if this landing is to be utilized by canoeists. It could be furnished either by a well or by connecting to a rural water system in this area. Rural water would probably be more pure and ongoing testing would not be necessary.

Next to this park is the Sportsman's Steak House which was closed. It may open as a bait shop and have Microwave food and some grocery, camping, and hardware supplies as well as off sale alcohol. It also has a dozen to twenty camper pads available for rent. They have electricity and water available. There is a charge for their use but we were unable to learn the current prices.

From about one mile above the park to about two miles below the park the Nebraska shoreline is developed with cabins of all description. The bank of the river is almost completely lined with rip-rap. The cabins and the bank stabilizing reduces the sense of solitude and a feeling of being in a natural setting. Cabin development and bank stabilization projects continue to change the natural bank appearance.

Goat Island

Across from Brooky Bottoms is "Goat Island". It starts about one and one-half miles above the park and is about four miles long. It has no visible development along its banks. It did not appear to have any specific areas that are easily accessible by canoeists. The banks are about three to six feet high and a main channel seemed to run along the island for most of the way. It is my understanding that the National Park Service is considering developing the island for camping and hiking. Cedar County official's claim that the island belongs to the county although there have been no taxes collected on the island for many years. They are interested in having National Parks develop canoe camping but say that South Dakota is holding up the process because they also claim ownership. We would suggest that this conflict be resolved soon and camping on the island be developed. These camp areas should be primitive and back from the edge of the island making them invisible to the developed areas and the traffic using the ramp at Brooky Bottoms on the Nebraska side. A small sign located at landing sites should be the only advertisement on the river. Maps and brochures given to canoeists can show the location of these landings and campsites. There is a small island between the Nebraska bank and Goat Island near the east-end of the island. It should be important to also gain control of this island if camping in a natural setting is a long-term goal. Private ownership could spoil its natural characteristics and adversely impact Goat Island. See the discussion of the South Dakota side of Goat Island for additional information.

Mulberry Bend State Wildlife Management Area

For the first four or five miles below Goat Island the Nebraska bank is very steep and very high. It averages about fifteen to twenty feet above the river with only one spot where an old channel drops the bank to within three or four feet above the river. None of this area is easily accessible from a canoe. After those miles the river's bank does become more accessible with spots that are level with the river.

There is a public boat ramp at this SWMA which is nine miles from Brooky Bottom. Currently there is a new bridge being built about a quarter mile above the ramp. Highway 15 will cross the Missouri here. There is no camping indicated at this site but after the bridge is completed it may be possible to create a small camping area. It is difficult to determine just how large this camp spot could be because of the construction that is going on and because it would have to be outside the SWMA or designed to be compatible with the wildlife area.

One possible hazard that canoeists need to be looking for is at the boat ramp. Just above the ramp is a line of rock extending thirty to forty yards out into the river from the bank. It appears to push the current away from the boat ramp approach. This line of rock may be under water during most of the canoeing season and may not be readily apparent from the surface. Canoeists need to watch the surface of the river and if a line of disturbed water is seen running out from the bank, they need to move to the left until they can skirt the disturbed water and then paddle to the ramp below it. In the Aerial Photography and Maps booklet, this structure is identified as a "DIKE" at mile 775.4. It is possible that in the summer when water is being released from Gavins Point Dam, this dike is far enough underwater that a canoe would float over it. However if a canoe gets caught by the shallow rocks, the current may turn the canoe and cause it to capsize. Going around may take longer but prove to be much safer. In May when this survey was done the dike was just at the surface of the river and could not be floated over. It appeared as a line of white ripples and the water could be heard as it passed over it. Having encountered similar structures on other parts of the Missouri, we moved left while we were well above the dike. Unless they have been forewarned, novices might not recognize this as a hazard until they are too close to avoid it.

The limited parking at the ramp could be filled if the river is busy. It might be a good project to enlarge the parking area to accommodate more vehicles and to allow large campers, buses, and vehicles with canoe trailers to turn around. Whether this could be done in a SWMA is unknown. There is an outhouse and at least one picnic table here. No water is available.

If development is too restrictive in a SWMA, it may be beneficial to investigate the establishment of a camp and launch near this point. With the new bridge here, it would be an excellent area for canoeists to have good access.

Volcano Hill Area

Between Mulberry Bend SWMA and Volcano Hill the channel is mainly on the South Dakota side and while the South Dakota bank is mostly developed with cabins, the Nebraska side is largely undeveloped.

Nine miles below Mulberry Bend is a geographic feature known as Volcano Hill, see Nebraska Atlas & Gazetteer by DeLorme. It is not easily spotted among the other hills that make up the Missouri River Bluffs along the Nebraska side of the river. The river now flows about one and one-half miles north of this bluff. Just to the east of the hill is bottomland owned by Bob Finnigan. He has a small family camp along the river and he might be interested in sharing.

He owns about a third of a mile of riverfront which, with some clearing and mowing, could all be turned into public access. The biggest drawback to this property is that it is on the inside of a river bend and there is a large area of sandbars and infant islands between his camp and the main channel. Finding the access to this area from the river may be somewhat difficult although during barge season there is usually enough water in the small channels through the sandbars for canoes to float right to the campsite. Temporary signs might be very helpful. They may need to be removed in the winter and during periods of exceptionally high water. His neighbor upstream may be hostile and his neighbor downstream leases plots and provides a good launch ramp for her rentals, but would not accept occasional use, even by mistake. Because this place is about halfway between Mulberry and Ponca, it may be very useful to work with Mr. Finnigan for at least a launching and landing area. Road access is from a gravel county road out of Newcastle. This road runs near the top of Volcano Hill and a turnoff leads to the very top and to an impressive overlook of the valley below. Ionia Cemetery is right across the county road. The overlook is a "local teen party spot" and can be badly littered at times. The field road that leads to Finnigan's camp area turns left off this county road about 1.1 miles east of Volcano Hill. There is a metal pipe gate where the road begins. The gate is just east of a silo about twenty feet in diameter and about twenty feet high. Driving on this field road takes one down to the bottom and across a cornfield. The distance from the county road to the campsite is about one-half to three-fourths of a mile. If the field is wet or it is raining the road may be impassable. Mr. Finnigan indicated that he would like to raise the road and gravel it.

Ponca State Park

From about two miles above Volcano Hill to about one mile below it, the Nebraska side of the river is mostly shallow sandbars and low islands. Then the river bends to the east and runs along high bluffs on the Nebraska side for about two miles, before it bends to the south and the shallow water begins again. The main channel remains on the South Dakota side of the river until Ponca Park is reached. Other than running aground on a sandbar, there are no areas of significant danger to canoeists. There are no significant landmarks along the way until just before Ponca Park. About three or four miles above the park canoeists can spot a red and white striped "pole". This marks the suspended gas pipeline that crossed the river just below the park. The pole is actually on the South Dakota side and marks where the pipeline comes out of the ground and is suspended by cables across the river to a high bluff on the Nebraska side. While it is visible for about two miles above the park, this line actually crosses the river below the park.

Ponca State Park is twenty-two miles down river from Mulberry Bend and ten or eleven miles below Finnigan's property. There is a boat ramp in the park and access from the river is good. Because it is a state park, there are good camping facilities from tent camping to camper pads to cabins. There will also be a new Discovery Center to highlight the area's resource values.

Camping reservations are essential between Memorial Day and Labor Day, especially on weekends. Before and after these dates, reservations might be a good idea but perhaps not mandatory. The only other campground with full service is at Gavins Point Dam. All other campsites along the river are primitive with water, picnic tables, fire rings, and outhouses being the best services provided.

Summary of the Nebraska Side of the River

The spacing of the public access sites in Nebraska is very good. With the exception of the lower part, there is ingress and egress about every one and one-half to two and one-half hours. Camping for self-contained canoeing parties is either available or could be made available at adequate intervals. If an arrangement can be worked out with Mr. Finnigan, there will be good access in the lower part, as well. Not only can the access spots be reached by river they are also accessible by road. Starting and stopping would be available for any length of trip desired, from a couple of hours to two or three days.

It is not difficult to average three to four miles per hour on the river in a canoe. Moderately good canoeists can average five miles per hour without working hard. Novices should be able to float two to three miles per hour. Any stops along the way would add to the overall time of a trip.

Public and Private Access Spots and Points of Interest Between Gavins Point Dam and Ponca State Park on the South Dakota Side of the River.

Cottonwood Recreation Area

Cottonwood and Chief White Crane Recreation Areas are located at the base of Gavins Point Dam, Both have camping facilities for tents, and campers of all types. They also have good access to the Missouri. These are South Dakota State campgrounds and launch areas. Park stickers for all vehicles are required. There is a camping fee that varies depending on the type of services requested. The campgrounds are about five miles upstream from Yankton where the next public access is available. There is also good camping above the lake. Reservations are essential in the summer.

The river in this area may flow more swiftly when the spillway is opened and water is being released for barge traffic below Sioux City. River volume for the river to St. Louis is controlled by these releases. When we did this survey there was high water in the James River and the other rivers draining South Dakota. Their combined total volume was providing sufficient water for barge traffic so very little water was being released. Our trip was on a river that was lower than it normally is at that time of the year, even when we were below the James. This part of the river was easy and with some care the water was deep enough to easily canoe it. Most of the riverbank in South Dakota from Gavins Point to Yankton was developed into cabins and year-round homes. It appeared that the few areas not yet built on were already being prepared for future homes.

Yankton Riverfront Area

Immediately downstream from the Highway 81 bridge is a city park. It runs about one-half mile along the river. Near its east-end there are public boat ramps and docks with ample maneuvering space for large groups of canoeists. There is ample parking here as well. Water, bathrooms, and picnic shelters are available. There is no camping here. The downtown district of Yankton is next to Riverside Park.

Across the fence on the east side of the park is the Yankton sewage treatment plant. While the smell is not overpowering, if the wind is out of the north it is definitely noticeable.

From here to the next public access is about nineteen miles, according to the Aerial Photography and Maps booklet. Other than the tricky eddy currents around the ends of the rock jetties built out from the banks there are no serious hazards with which a canoeist must deal. The main channel was primarily on the Nebraska side of the river and floating the South Dakota side was very difficult. About five miles below Yankton, the James River flows into the Missouri. It meets the river just below the head of the James River Island (also known as Jacques Island). The channel between the north bank and the Island was difficult to identify and did not appear to be deep enough for us to enter so we did not float the north channel. Where the channel rejoined the rest of the Missouri it was deep enough for a canoe because of the James River flow.

James River Island is about three miles long and did not appear to have been developed along its south bank. There were places along the island where the channel forced us over to the Nebraska side of the river and we struggled to find a way to get back near the South Dakota side. About ten miles down from Yankton the main flow of the river moved to the north side and stayed there for about five or six miles. At the end of this stretch is Audubon bend and once around this bend we traveled about one mile to the public boat ramp at Myron Grove

Myron Grove Game Production Area

This is officially known as the Myron Grove Game Production Area of the South Dakota Dept. of Game, Fish & Parks. At the East end of this land there is public access known locally as the highline public access because of the power lines that cross the river here.

At low river stage the water is quite shallow when approaching the ramp and we were forced to pull our canoe across sandbars to the deeper water just against the bank, a distance of about twenty or thirty yards. There are rocks piled up on the up stream side of the ramp and, while we had virtually calm water at the ramp, when the river is higher the rocks could set up eddies which could make a tricky landing for unwary canoeists. Of course the sandbars which caught us would be well under water and not a problem in approaching the landing at a higher river stage.

There was no water, no outhouse, no fire rings, or picnic tables here. This area is at the end of county road number 454, that is two miles east of the county road marking the boundary between Yankton and Clay Counties.

Clay County State Recreation Area

Less than eight miles down river is the next public access. It is called both a State Recreation Area and a County Park depending which map you use. It is at the end of County road number 460.

Between these two points the South Dakota riverbank is mostly developed. In this area is also the north side of Goat Island. Along the island are two or three good access spots. At the head end of the island, which starts less than a mile below Myron Grove, there is a long set of sandbars, which could provide easy access to the island. Toward the east-end of these bars there appears to be a slough between them and the island itself. This would make it hard and certainly messy moving camping gear to the higher land. About half way down and then about three-fourths the way down are two large sand beaches. They are fairly steep but do make the island useable. There were no visible developments on this side of the island.

The Clay County landing is about two miles below the lower tip of the island. It has a large parking area, a good boat ramp with a floating dock. The main channel runs along the bank here and a landing could be a little tricky (see suggestions on making a landing in a strong current). There is an outhouse that is small but adequate and clean. About one-fourth mile north there is an entrance to the camping area. It offers primitive camping with fire rings, picnic tables, one outhouse and a water spigot. Graveled pads mark individual campsites. It is not fancy and one imagines the bugs could get pretty bad back in the trees where the camping is located. Canoeists with their camping gear with them would opt for camping on Goat Island.

Because the distance between Myron Grove and Clay County is so short, this would make a very pleasant afternoon float trip.

The river around Goat Island is deep enough for easy canoeing. Because both the Nebraska and South Dakota sides are mostly developed, it really doesn't matter which side of the river one travels. Access to camping on Goat Island could be created on both sides and separate camps could be created for each side.

As on the Nebraska side there is a smaller island between the South Dakota bank and the island. If Goat Island becomes federal property, it would make sense to secure ownership of this island as well. In fact when the river is low it is nearly connected to Goat Island. Private development would have an adverse impact on the camping envisioned for Goat Island.

There were two inflatable canoes at Clay County Park that had landed shortly before we arrived. They belong to Erik Larsen who runs trips on the Missouri for pastors. He had come down the river with three pastors and was waiting for three more who would leave yet that afternoon. They planned to camp on an island that night and travel to Rosenbaum the next day. Erik has just the two inflatable crafts and to date had only had trips for pastors. He did say that he would be interested in talking to someone about Bicentennial trips. See Appendix.

Clay County Park to Mulberry Bend

It is only three miles from Clay County Park to Frost Wilderness Area, which has public access. We were not able to survey this area because the new Highway 15 bridge was being built and road access was cut off to the Wilderness Area.

Access from the river may be available but we were unable to find it. On the day we canoed by, the wind was blowing very hard from the northwest and we were struggling to just remain upright and did not see the spot. Since we could not drive to the place and we missed it on the river we were unable to assess its usefulness to canoeists. This may offer another alternative, which could extend the day's trip from Myron Grove by another twenty or thirty minutes or more. It also could be important because of its proximity to the new bridge and the easy access to Nebraska. Whether camping could be done better here than at Mulberry on the Nebraska side should be determined.

The main channel runs in the center of the river by the Wildlife Area although when the river is up there should be ample water to float along the South Dakota bank and find this exit.

According to the Aerial Photography and Maps booklet, this public access landing is only one mile or less above the public access on the Nebraska side of the river at the Mulberry State Wildlife Management Area. Because of the bridge, one of these areas may prove to be much easier to develop for canoeists.

Frost Wildlife Management Area to Bolton Game Production Area

Thirteen and one-half miles below Frost is Bolton, the next South Dakota public access spot. Bolton is about eleven miles above Ponca State Park. It is approximately one to one and one-half miles below the Finnigan property near Volcano Hill in Nebraska. This landing is adequate but small. There is no developed camping but there appears to be sufficient room for campsites to be built if allowed. The river approach is good. During high water there may be some currents to contend with as the landing is reached. Just a little care should keep most canoeists out of trouble and allow even the least skilled to make a soft landing.

This stretch of the river passes under the new bridge which at present means that the construction is squeezing the channel width to about half its normal size. As a result the river runs faster than normal. This may not be a problem for most canoeists, but if the work barges are moving about, care must be taken to give them a wide berth. There may even be times when canoeists must hold up until the work pattern allows them safe passage. When the bridge is complete it is assumed that the restrictions in the channel will be removed and the river will return to a more normal pattern, making passage a simple task.

The rest of the river in this area is similar to the previous stretches and there are few noticeable hazards other than the dike at Mulberry boat ramp as previously described. The main channel seems to wander back and forth more in this stretch than others. Again when the river is at normal levels this may not be a concern. Eddies created by bank stabilization projects and some downed trees constitute other hazards to be on the lookout for.

Bolton Game Production Area to Rosenbaum Public Access

Seven miles below Bolton is a public access site that is marked in the "Aerial Photography and Maps" booklet. We were unable to find a road access to it although the east-west county road numbered 330 appears to lead to it. It is marked as a minimum access road and we could see that it was quite muddy in the last half-mile to the river. We do know that it is usable because on a previous visit we observed two vehicles at the landing. This landing is three or four miles above Ponca and may prove to be in the most ideal spot for a final landing on the South Dakota side of the river. Were it to be developed, the road to it would need to be included in any improvement project.

About five or six miles below Ponca State Park is the Rosenbaum Wildlife Area in South Dakota. This is an excellent landing. It has a large parking area and a ramp, which actually drops into a small manmade channel about twenty yards from the river. At the time we were there the ramp was cut off from the river by shallow water, but under normal conditions it would have more than enough water to be usable. Again there were no camping facilities found in the Area, but with Ponca State Park just upstream, camping may not be necessary.

The river to this spot is similar to all the other stretches. The main channel moves from side to side but looks as if it may be on the South Dakota side as it passes this access spot.

This site is actually below the survey stretch of the Missouri but the riverbanks are as natural in this area as the survey stretch. Adding this distance to a canoe trip would not spoil the impressions gained from the miles of canoeing above.

APPENDIX

I. Personal Safety

Always wear a life jacket! Macho doesn't matter if you are swept under water or logs and trees. Make sure the life Jacket is a Coast Guard approved one. Cheap may not save the life of one who is knocked unconscious and is not held face up automatically. A life jacket fastened to a canoe may be a death jacket. There is never time to unhook it and put it on in an emergency. Suntans can be evened out later.

Let someone know where you will be and approximately how long you will be there. If it is more than one day, write down on a map your planned camping sites for each night.

Anyone who is sensitive to the sun be sure to have plenty of sun screen and use it. Sunburns on the river always seem to be worse, and they can land one in the hospital. Along with sunscreen be sure that long pants, long sleeves, a big brimmed hat, and foot and ankle cover are at least along in the canoe. Lessen the degree of burn by covering up even if it is hot and sweaty. Sweat is gone after a shower--sunburn is not.

If it is very hot, stop often and find shade and get in the water. If no shade is available, get in the water anyway. Cool your body down. Heat stroke and dehydration can kill you. Water is the best hydrator--alcohol is the worst. Always carry more water than you think you will need. You can always dump it at the end of the trip, but you may not be able to find it along the way. A wet towel, hat, scarf, T-shirt, etc., put on your head will help keep you cool.

Weather on the plains is very unpredictable. Bring clothing for cold, wet, windy, hot sunny, humid and everything in between. Layers are best. Don't be afraid to use them, comfort is safer than "toughing it out". Keep extra clothing in a waterproof container. Also be sure to have at least one complete set of dry clothing in case of a dunking. Wool is the best insulation--it works even when wet. You may not like to wear wool, but have it along for an emergency.

It is often difficult to keep feet dry all day long. A good combination of footwear for all but the most frigid days is wool socks and good fitting sandals that will not fall off the feet in running water. Nylon, silk, or cotton socks can keep the wool away from sensitive skin. Another good alternative is the "water shoe". Some of them are made of wet suit material (neoprene) and have insulating value when wet. Cold feet can ruin an otherwise exciting trip. Tennis shoes work but once your feet are wet, they will stay wet all day and they will draw heat away from you wet feet at the same time. Have dry shoes for the end of each day. They should be fairly watertight and warm, even on most summer days.

A basic first aid kit should be in every canoe. It doesn't need to have a doctor's supplies in it but it ought to have lots of Band-Aids of several sizes, some gauze and tape, aspirin or other pain killer, some disinfectant, special medicines for special needs of the canoeists are good suggestions.

Insect repellent is a must on any spring, summer, or fall canoe trip. It hurts to have bugs bit while you are performing a precise maneuver or when they force you to cover up.

II. Getting in and getting out of a canoe.

Canoes can tip if the canoeists are not careful to maintain their balance and keep their center of gravity low. Other tips to remember include never having one end of the canoe on a bank so high that there is air between the canoe bottom and the water. That is like balancing on a pencil since it is resting on its two points. After placing the canoe into the water so it is resting on its entire bottom, put your equipment in and secure it. Then one canoeist may enter the craft and after he or she is settled in with a paddle in hand and balance under control, the second canoeist may enter the canoe, pushing out to deeper water as the entry is made. Only after both canoeists are set and ready should paddling begin.

To get out of the canoe, generally the process is reversed. Be sure that the canoe is resting on its entire bottom either in water or on land at water level before disembarking one at a time.

III. Landing alongside a steep bank, in a strong current, or at a dock.

When the canoe is still about fifty to one hundred yards above the landing turn it around so that it is heading up stream. Point the bow slightly towards the bank and paddle to hold the canoe in place, let the current help move the canoe to the bank. Landing the canoe alongside the bank or ramp rather than bow first into it will give a softer and safer landing. As soon as the canoe comes alongside bank, the front canoeist can get out and hold the canoe for the back canoeist to disembark. If there are several canoes in the group it would be wise to space them out before landing so that each canoe can be pulled out of the way before the next comes to the landing. Immediately pull all canoes away from the landing so that others can use the access either to launch or land.

IV. Hazards in the water and how to deal with them.

Strong eddies along the shoreline. These can be caused by a number of things but on the Missouri they are mainly the result of four or five conditions, two of them manmade.

One manmade condition is the result of bank stabilization projects. Rock and other rip rap are dumped into the river and may stick out from the bank as far as ten to twenty fee. They are built where the channel is cutting into the bank and the water is flowing rapidly. When the current hits these jetties it is pushed away from the bank. On the down stream side of the jetty is an area of calm water that may have a weak current that is actually moving "up stream". Where these two conflicting currents meet there can be small whirlpools. If the bow of a canoe floating by is caught by the up stream current, the canoe will be spun around by the force of the down stream current on the stern. If this spin catches the canoeists unprepared, they will be thrown to the down stream side of the canoe with enough force to cause the weight shift to roll the canoe over. This condition almost always exists where the water is very deep. Conflicting currents, deep water, a capsized canoe, creates a very dangerous situation.

The other manmade condition is a dike built of rocks that can stretch fifty yards out from the bank. They are built so that they are underwater during normal flows. Their purpose is to force the current away from some structure on the bank. In the Missouri it is usually a boat ramp. Because they are usually underwater they may not attract the attention of some canoeists. If they are not below the level needed for the canoe to remain afloat they can catch a canoe and cause it to overturn. Again they are usually put where the water is deep and can cause you to capsize, which can be extremely dangerous. When they are near the surface they will show up as a line of disturbed water stretching from the bank. The best response is to steer the canoe around the end of the dike even if the plan is to get out at the access being protected.

One natural condition that a canoeist must watch for is downed trees and other vegetation along the riverbanks. They also can set up conflicting currents on the down stream side. It is also possible to be sucked under them if one float into them from up stream. Moving out into the river away from the bank is the best strategy for avoiding these dangers.

Hazards are limbs, logs, rocks, etc. which may lie just below the water level. These can often be spotted as a vee shaped water disturbance. The point of the vee will be up stream. Just steer clear of the point of these vees or they could lift the side of the canoe and roll it over.

One last hazard is more a nuisance than a danger in most cases is the many shallow sandbars. At normal river levels their numbers will be small enough that they will not be a major problem except that the canoeists may forget about their existence and be caught on one. Normally the canoe just grinds to a halt as the river gets shallower and shallower until it no longer will float the canoe. The solution may be to try to push on over or back up to get off the bar, but often it is easier for the canoeists to get out of the canoe and pull it to deeper water. Without the weight the canoe will float easily. The hard part is walking in the soft sand.

V. Getting down a river with a minimum of energy expended.

First rule to remember is that the water is going the same direction you are. Therefore if you do nothing you will get there anyway.

Second rule is that someone should be in charge. On the Missouri River as on most prairie rivers, the canoeist in the back of the canoe can single handedly steer a canoe. No help from the front is needed in most cases. Let the one in the back take all the blame for steering mistakes. Also let that person be in charge. The canoeist in front can best help by supplying power with hard, short strokes, especially when asked from the stern. Ideally canoeists will paddle on opposite sides but in many cases it really doesn't matter that much on the Missouri River. Whoever is in front can also help by identifying shallow water, logs, rocks and other obstacles in the water which the canoe may hit if the stern is not aware of their existence.

The canoeist in the stern is often the most experienced and has enough skill to generally make a canoe go where it should. Steering is often simply done by either placing the paddle in the water two or three feet from the side of the canoe and pulling toward the stern or by putting the paddle in the water right next to the canoe and pushing away. Actually it is the canoe which is either being pulled or pushed, not the paddle. Another steering skill that works whenever the canoe is going faster than the current is to use the paddle as a rudder and let the water pressure on the paddle move the canoe. This is a slower turning method than the first.

Think about steering the canoe as you would steer a car or bicycle. Make lots of little corrections rather than waiting until you are sideways in the river before trying to straighten out. Look down river as you would down the road and pick a point to head for. When that point is reached pick another and so on.

All bets are off whenever the wind is blowing. It doesn't matter the direction the wind is blowing, it will affect the direction a canoe is going. In a strong wind, help from the bow is not only nice but often necessary if staying in a channel is the goal.

A headwind causes two major problems. One is that paddlers tend to work harder than necessary to move downstream. To determine how much energy must be used just look at the shore. If it appears to be sliding by in an up stream direction, then no additional effort is required. If it appears to be going in a down stream direction you are being blown upstream and unless you want to go back to where you started you better paddle harder. As long as you are moving downstream you are working hard enough. You will just get to your stopping point a little later than originally planned.

A second problem with a head wind arises whenever the bow canoeist is much lighter than the stern canoeist. The front of the canoe will ride higher in the water and the wind will catch it and push it like a windmill vane. It will want to point downwind which makes the canoe sit backward in the water. Solution number one is for the canoeists to pile all their equipment as near the front as possible and help plane it out level in the water. If this doesn't work, go to plan B. Plan B is to have the stern paddler mover forward in the canoe and kneel. If moving to center still does not hold the canoe into the wind then try Plan C, switch ends. Heavy in the front light in the back. Now the back will be the vane and, by pointing downwind, the canoe will face down stream.

Side winds can be the most frustrating. They want to blow you either to one bank or the other. They also set up waves in the Missouri which hit you from the side. When those waves are eighteen inches or higher capsizing is a real threat. Canoes traveling across waves are rocked unmercifully and unless both canoeists are instinctively agile and balance conscious they can capsize so quickly that the danger is only realized after the fact. Best solution is to try to hug the upwind bank as much as possible. In extremely strong gales, get off the river and wait a day or two for the wind to go down. Actually the wind often subsides toward evening.

Wind from the stern usually is a favorable event. Even fairly strong winds will mainly push the canoe down stream at a faster clip and the canoeists work is mostly done. The problem with river travel is that rivers change directions and what is a tail wind can become a side wind or sometimes even a headwind. Wind is always a problem that canoeists must deal with. Strong wind is something most canoeists may want to stay away from altogether.

VI. Loading a canoe for a safe trip

Any canoeists who are taking all of their food, clothes and camping gear along in the canoe should spend some time carefully planning what to take and even more important, what **not** to take.

In most canoes there is a manufacturer's plate that gives weight limits as well as other important information. Be sure you read the limits. Don't exceed them. You'll be sorry! Every pound you put in the canoe (including yourselves) will cause the canoe to sit lower in the water. This can cause two conditions that become worse with each pound added. One condition is that the canoe will need more water to float in. A canoe with two average adults and little else may need as little as three inches of water to stay afloat. The same canoe with maximum weight limit may need more than six inches to keep from running aground. On a river with lots of sandbars those three or four inches can mean the difference between canoeing and hiking. Most canoeists prefer canoeing.

A second condition that can become a serious problem is that as the canoe sinks deeper into the water, the freeboard (sides left above water level) become less and less. With eight to ten inches of freeboard there is little danger of waves breaking over the sides and slowly filling the canoe with water. Canoes also become "loggy" and when they begin to roll they are difficult to return to an upright position. While most canoes will not sink to the bottom when they are full of water, it is impossible to keep them upright and to steer them. Also anything that is not securely fastened in will float away. This is particularly bad if it is your sleeping bag or cooler.

Because these two conditions are guaranteed if a canoe is heavily loaded, the best solution is to travel with only a moderate amount of weight. Backpackers have the advantage of already owning lightweight camping equipment and they should (and usually do) use it when canoeing. Others should take time to calculate the minimum amount of weight of the equipment that they have and be very selective in packing. In other words a twenty-five pound tent may be okay but maybe one should leave the 12' x 12' dining fly with the mosquito net sides at home. Aluminum rather than cast iron cookware also makes sense. Don't forget to calculate the weight of those water jugs after they have been filled. Also you must be prepared for the worst at the same time. At least have a roll of duct tape along. Those kind of decisions can make a trip on the Missouri fun and exciting or make it a nightmare.

Make sure that when you load your gear you balance your canoe. Keep the weight evenly divided so that the canoe does not lean to one side or the other. Include your own body weights to keep the canoe balance from front to rear. Your task of getting from point A to B will be much easier if you are not having to sit in an uncomfortable position to keep the canoe level.

If you are just planning a day trip you still must make careful preparations. Always start with the life jackets. Spare clothes, protection from sun, an extra paddle, lots of water, matches, food, shoes, etc. It is wise to be ready for anything. Some will tie their paddle to the canoe so that it cannot be lost even in a capsize. Either canoe with someone who has been on the river before or study the part of the river you will float. Know how long it will take and how much longer it could take with a head wind. Can you walk out if you need too? Even if that means pushing through weeds as high as you head for a mile or more? On a day trip there is usually less weight in a canoe so these items will not make it too heavy.

VII. Characteristics of the Missouri River.

The river's current will surprise you with its power. It flows fairly fast and can move you into obstacles and hazards quicker than you might expect. Respect the current and always try to use it to your advantage rather than fight it.

At normal levels the depth can be over your head in the main channels. Tipping over in a main channel can be very dangerous even if there are no hazards in the area. A canoe full of water is almost impossible to pull to shore or shallow water. In this situation don't fight the current. Go with it and slowly work to the side.

While the main channels may be deep, many parts of the river can be very shallow. There are many sandbars and some are shallow enough to catch a canoe. Some may have become low islands and can be good resting spots. Normally sandbars are more a nuisance than a danger. There are only a few places that one might choose the wrong channel and end up running out of water before returning to the main river. The biggest problem would be if you picked the wrong side of an island to go around and ended up having to walk and drag your canoe for a few hundred yards. During normal flows this may never happen. During low flow times it might.

VIII. Reading the River Surface

With some practice and close observation most canoeists can develop the skill of reading the surface of the river to find the best path to take. It is mostly by trial and error that one learns which choice to make to keep in the deepest and fastest water. Few will choose perfectly every time. The more one practices the fewer mistakes one makes. Both canoeists can practice the art of river reading and sometimes lively discussions can be had on the best direction to head. Decisions can be made very democratically by debate and vote or by consensus or by dictatorial orders issued by the dominant canoeist. Usually it makes no difference unless one takes it too seriously. After all, a mistake sometimes leads to the most interesting events on a trip.

Some visual signs to help make good decisions would include the following:

1. Logs and branches lying in the middle of the river and not moving. That's a good sign that the river is shallow there. Lots of them point to a large shallow sandbar to be skirted.

2. There is usually a channel deep enough to float a canoe right along the banks of the river. If in doubt, keeping next to the bank often gets one through shallow water. Like all rules, this one has its exceptions.

3. Water that looks dark and slick (shiny) indicates depth enough for a canoe. When caught in a large area of shallow water, sticking to these dark pathways will often get one clear of the bars.

IX. Miscellaneous

1. Don't overestimate your physical abilities. When planning your trip, always think your day's distance is too short. If you are not familiar with the river, you may find that it takes longer than you thought to travel down. It is better to have time left over than to be paddling after dark. That could be dangerous and you might miss your landing. Weather conditions, water levels, etc. can all lead to unplanned delays or slow progress.

2. The Missouri can be canoed at about three to five miles an hour. The less experience you have the slower you will probably go. If you tend to float rather than paddle, your progress will also be slower. If you stop, rest, explore a lot you will slow down also. To average five miles per hour you will not be paddling hard, just steady. You will also take only a few, short breaks and a lunch time of no more than twenty or thirty minutes. Again, when you are planning, estimate your speed and than take the next mile per hour slower to figure your daily schedules. Remember that canoeing in the plains is a recreational experience and taking time to "smell the roses" should be your main goal. "Getting there" is pretty far down the list of priorities. "Getting there" is what the river does for you.

3. Hazards: Insects/Plants. Insect repellant should be used to deter ticks. Be sure you can identify ticks, black widow and brown recluse spiders. Light colored clothing is recommended for spotting ticks on clothing. Rattle snakes and water snakes may also be in the area. If a poisonous spider or snake bites you, seek emergency medical attention. Also, know what poison ivy, poison oak and poison sumac look like, and stay away from it.

SUGGESTIONS

It would be nice if the camps created for canoeists could be limited to non-powered boat users only. If power boats begin using them the canoeists may not have a place to camp on busy nights.

A survey of launching areas during busy times could be conducted by calling the authority that over sees each one. Overcrowding will anger those currently using the various facilities. Enlarging or adding or creating additional space may be good public relations.

Create a large enough map that can be taken on the river. 11" X 17" that can fold into a tri-fold brochure would be better than one on standard 8.5" X 11". It should show only the features along the river necessary for safe and enjoyable canoeing. The map should also show the roads and towns in the vicinity. It should also include the location of emergency organizations as listed below. Those features should be accurately positioned on the map. The brochure should include safety rules and elementary instructions that will be helpful on this stretch of the Missouri River. Pictures and drawings showing necessary canoeing strokes, landing techniques, safe routes around river hazards, etc. may be better than or in addition to written descriptions. Emergency organizations and their phone numbers should be included and connected with the parts of the river that they serve.

If a video of canoe safety and techniques is ever created, be sure it describes only the rules and skills needed for this part of the Missouri River. Material that is not needed or does not apply will only confuse the learner.

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XI. BIBLIOGRAPHY

AERIAL PHOTOGRAPHY AND MAPS, May 1981, Missouri River - Gavins Point Dam to Ponca State Park, Nebraska, Missouri National Recreational River Nebraska and South Dakota, by US Army Corps of Engineers, Omaha District

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Missouri Mileage Chart

APPROXIMATE MILES

811 - Cottonwood	0	5	12	21	23	23	23	25	26	31	34	35	45	45	47	54	57	59	62
811 - NE Tailwaters	5	12	21	23	23	23	25	26	31	34	35	45	45	47	54	57	59	62	
806 - Yankton	7	16	18	18	18	20	21	26	29	30	40	40	42	49	52	54	57		
700 - Cedar Co.	9	11	11	11	13	14	19	22	23	33	33	35	42	45	47	50			
790 - Mo. R. Canoe	2	2	2	4	5	10	13	14	24	24	26	33	36	38	41				
788 - High Line	0	0	2	3	8	11	12	22	22	24	31	34	34	37					
788 - Fossils	0	2	3	8	11	12	22	22	22	29	32	34	37						
788 - Myron Grove	2	3	8	11	12	22	22	22	29	32	34	37							
786 - Goat Island Start	1	6	9	10	20	20	22	29	32	33	36								
785 - Brooky Bottoms	5	8	9	19	19	21	28	31	32	35									
780 - Clay Co.	3	4	14	14	16	23	26	28	31										
777 - Frost	1	11	11	13	20	23	25	28											
776 - Mulberry Bend	10	10	12	19	22	24	27												
766 - Volcano Hill	0	2	9	12	14	17													
766 - Finnigan's	2	9	12	14	17														
764 - Bolton	7	10	12	15															
757 - Public Ramp	3	5	8																
754 - Ponca Park	2	5																	
752 - Gas Pipe Line	3																		
749 - Rosenbaum																			

NEBRASKA SIDE -- LOWER MISSOURI RIVER

APPROXIMATE MILES

811 - NE Tailwaters	12	21	23	23	25	26	35	45	45	57	59
799 - Cedar Co.	9	11	11	13	14	23	33	33	45	47	
790 - Mo. R. Canoe	2	2	4	5	14	24	24	36	38		
788 - High Line	0	2	3	12	22	22	34	36			
788 - Fossils	2	3	12	22	22	34	36				
786 - Goat Island Start	1	10	20	20	32	34					
785 - Brooky Bottoms	9	19	19	31	33						
776 - Mulberry Bend	10	10	22	24							
766 - Volcano Hill	0	12	14								
766 - Finnigan's	12	14									
754 - Ponca Park	2										
752 - Gas Pipe Line											

SOUTH DAKOTA SIDE

APPROXIMATE MILES

811 - Cottonwood	5	23	23	25	31	34	47	54	59	62
806 - Yankton	18	18	20	26	29	42	49	54	57	
788 - High Line	0	2	8	11	24	31	36	39		
788 - Myron Grove	2	8	11	24	31	36	39			
786 - Goat Island Start	6	9	22	29	34	37				
780 - Clay Co.	3	16	23	28	31					
777 - Frost	13	20	25	28						
764 - Bolton	7	12	13							
757 - Public Ramp	5	8								
752 - Gas Pipe Line	3									
749 - Rosenbaum										